

CLAIMS:

1. A method of browsing electronically-accessible resources using descriptions of said resources, wherein said descriptions of said resources have descriptor components, said  
5 descriptor components having attributes representative of at least two axes of access to the resources and wherein said descriptions have links to corresponding said electronically-accessible resources, said method comprising the steps of:

reading said descriptions;

10 displaying items, wherein each item is associated with a corresponding said descriptor component of a said read description that has at least one said attribute; and

browsing said descriptions of the resources and their corresponding electronically-accessible resources via said links using said displayed items.

15 2. A method as claimed in claim 1, wherein each said read description is represented by a tree of descriptor components, and one or more of said descriptor components have descriptor components as descendents.

20 3. A method as claimed in claim 1, wherein one of said axes of access is a table-of-contents classification.

25 4. A method as claimed in claim 1, wherein one of said axes of access is an index classification.

30 5. A method as claimed in claim 1, wherein the descriptions of the resources have been generated using a description scheme as a template, and the description scheme uses a declarative description definition language which contains definitions for descriptor components of the said descriptions of the resources.

6. A method as claimed in claim 5, wherein said attributes of the descriptor components are defined in the description scheme.

7. A method as claimed in claim 5, wherein the said attributes of the descriptor components are a persistent item of the description scheme.

8. A method as claimed in claim 5, wherein the said attributes of the descriptor components are instantiated by an application when required.

5 9. A method as claimed in claim 8, wherein the said attributes of the descriptor components are instantiated using a rule that is associated with the description scheme.

10. A method as claimed in claim 1, wherein the resource is an item of digital content.

10 11. A method as claimed in claim 1, wherein the resource is an electronic document or resource available over the World Wide Web.

12. A method as claimed in claim 1, wherein the resource is an electronic device.

15 13. A method as claimed in claim 1, wherein the description of the resource contains links to identified sections of the resource.

14. A method as claimed in claim 1, wherein said axes of access are determined by rules operating on the description.

20 15. A method as claimed in claim 1, wherein said axes of access are determined during the generation of the description of the resource.

25 16. A method as claimed in claim 1, wherein said attributes of said descriptor components representative of said at least two axes of access are inferred from the content of the description.

30 17. A method as claimed in claim 16, wherein said attribute of a said descriptor component is inferred to be a table of content descriptor if the said descriptor component contains a reference to a resource or a section of a resource.

18. A method as claimed in claim 17, wherein said attribute of a said descriptor component is inferred to be an index descriptor if the said descriptor component is not inferred to be a table of contents descriptor.

5 19. A method of searching electronically-accessible resources using descriptions of said resources, wherein said descriptions of said resources have descriptor components, said descriptor components having attributes representative of at least two axes of access to the resources and wherein said descriptions have links to corresponding said electronically-accessible resources, said method comprising the steps of:

10 reading said descriptions;

displaying items, wherein each item is associated with a corresponding said descriptor component of a said read description that has at least one said attribute;

specifying a query in terms of index descriptors;

searching said descriptions of the resources using said query; and

15 locating said corresponding electronically-accessible resources using said links associated with said displayed items.

20 20. A method as claimed in claim 19, wherein each said read description is represented by a tree of descriptor components, and one or more of said descriptor components have descriptor components as descendents.

21. A method as claimed in claim 19, wherein said method further comprises the step of:

25 playing resources corresponding to said located descriptions of resources.

22. A method as claimed in claim 19, wherein said attributes of said descriptor components representative of said at least two axes of access are inferred from the content of the description.

30 23. A method as claimed in claim 22, wherein said attribute of a said descriptor component is inferred to be a table of content descriptor if the said descriptor component contains a reference to a resource or a section of a resource.

24. A method as claimed in claim 23, wherein said attribute of a said descriptor component is inferred to be an index descriptor if the said descriptor component is not inferred to be a table of contents descriptor.

5 25. A method of locating electronically-accessible resources using descriptions of said resources, wherein the descriptions of said resources have descriptor components, each said descriptor component comprises the association of a feature of a said resource with a representative value for that feature, and one or more of said descriptor components including a table of contents attribute and one or more of said descriptor components including an index attribute, and wherein said descriptions have links to corresponding  
10 said electronically-accessible resources, said method comprising the steps of:

reading said descriptions;

displaying a table of contents containing table of contents items, wherein each table of contents item is associated with a corresponding said descriptor component that has a  
15 table of contents attribute;

selecting one said displayed table of contents item;

displaying an index containing index items, wherein each said displayed index item is associated with a corresponding said descriptor component that has an index attribute and that is associated with the said selected table of contents item;

20 selecting one or more index items in the displayed index;

specifying a said representative value or values for the one or more said selected index items;

searching said descriptions of the resources for said one or more selected index items and their corresponding said specified representative value or values; and

25 locating one or more said descriptions of the resources corresponding to said one or more selected index items and their corresponding said specified representative value or values.

30 26. A method as claimed in claim 25, wherein each said read description is represented by a tree of descriptor components, and one or more of said descriptor components have descriptor components as descendents.

27. A method as claimed in claim 25, wherein said method further comprises the step of playing resources corresponding to said located descriptions of resources.

5 28. A method as claimed in claim 25, wherein said step of selecting one said table of contents item is optional and if not performed said step of displaying an index displays all said index items associated with all said table of contents items.

10 29. A method as claimed in claim 25, wherein said selecting step of index items comprises selecting logical combinations of said displayed index items and their said representative values.

15 30. A method as claimed in claim 25, wherein said attribute of a said descriptor component is inferred to be a table of content descriptor if the said descriptor component contains a reference to a resource or a section of a resource.

20 31. A method as claimed in claim 30, wherein said attribute of a said descriptor component is inferred to be an index descriptor if the said descriptor component is not inferred to be a table of contents descriptor.

25 32. A method of annotating an electronically-accessible resource using a description of said resource, wherein the description of said resource has descriptor components, each said descriptor component comprises the association of a feature of said resource with a representative value for that feature, and one or more of said descriptor components including a table of contents attribute and one or more of said descriptor components including an index attribute, said method comprising the steps of:

30 reading said descriptions;  
displaying a table of contents containing table of contents items, wherein each table of contents item is associated with a corresponding said descriptor component that has a table of contents attribute;  
selecting one said displayed table of contents item for the annotation;

~~selecting one said displayed index item;~~

~~choosing a said representative value for the selected index item; and~~

33. A method as claimed in claim 32, wherein each said read description is represented by a tree of descriptor components, and one or more of said descriptor components have descriptor components as descendants.

15

34. A method as claimed in claim 32, wherein said step of associating said selected display index item is allowed only if the corresponding descriptor of said selected display index item is a valid descriptor for the table of contents item selected for annotation.

20 35. A method as claimed in claim 32, wherein said step of choosing a said representative value is predetermined.

36. Apparatus for browsing electronically-accessible resources using descriptions of said resources, wherein said descriptions of said resources have descriptor components, said descriptor components having attributes representative of at least two axes of access to the resources and wherein said descriptions have links to corresponding said electronically-accessible resources, said apparatus comprising:

means for reading said descriptions;

means for displaying items, wherein each item is associated with a corresponding  
30 said descriptor component of a said read description that has at least one said attribute;  
and

means for browsing said descriptions of the resources and their corresponding electronically-accessible resources via said links using said displayed items.

37. Apparatus as claimed as claimed in claim 36, wherein said means for reading said descriptions represents each description by a tree of descriptor components, and one or more of said descriptor components have descriptor components as descendents.

38. Apparatus as claimed in claim 36, wherein one of said axes of access is a table-of-contents classification.

39. Apparatus as claimed in claim 36, wherein one of said axes of access is an index classification.

40. Apparatus as claimed in claim 36, wherein the descriptions of the resources have been provided using a description scheme as a template, and the description scheme uses a declarative description definition language which contains definitions for descriptor components of the said descriptions of the resources.

41. Apparatus as claimed in claim 40, wherein said attributes of the descriptor components are defined in the description scheme.

42. Apparatus as claimed in claim 40, wherein the said attributes of the descriptor components are a persistent item of the description scheme.

43. Apparatus as claimed in claim 40, wherein the said attributes of the descriptor components are instantiated by an application when required.

44. Apparatus as claimed in claim 43, wherein the said attributes of the descriptor components are instantiated using a rule that is associated with the description scheme.

45. Apparatus as claimed in claim 36, wherein the resource is an item of digital content.

46. Apparatus as claimed in claim 36, wherein the resource is an electronic document or resource available over the World Wide Web.

47. Apparatus as claimed in claim 36, wherein the resource is an electronic device.

48. Apparatus as claimed in claim 36, wherein the description of the resource contains  
5 links to identified sections of the resource.

49. Apparatus as claimed in claim 36, wherein said axes of access are determined by rules operating on the description.

10 50. Apparatus as claimed in claim 36, wherein said axes of access are determined during the generation of the description of the resource.

51. Apparatus as claimed in claim 36, wherein said attributes of said descriptor components representative of said at least two axes of access are inferred from the content  
15 of the description.

52. Apparatus as claimed in claim 51, wherein said attribute of a said descriptor component is inferred to be a table of content descriptor if the said descriptor component contains a reference to a resources or a section of a resource.  
20

53. Apparatus as claimed in claim 52, wherein said attribute of a said descriptor component is inferred to be an index descriptor if the said descriptor component is not inferred to be a table of contents descriptor.

25 54. Apparatus for searching electronically-accessible resources using descriptions of said resources, wherein said descriptions of said resources have descriptor components, said descriptor components having attributes representative of at least two axes of access to the resources and wherein said descriptions have links to corresponding said electronically-accessible resources, said apparatus comprising:

30 means for reading said descriptions;  
means for displaying items, wherein each item is associated with a corresponding said descriptor component of a said read description that has at least one said attribute;  
means for specifying a query in terms of index descriptors;

000210-022200  
A1  
Mont



means for searching said descriptions of the resources using said query; and  
means for locating said corresponding electronically-accessible resources using said  
links associated with said displayed items.

5 55. Apparatus as claimed in claim 54, wherein said read means represents each said  
description by a tree of descriptor components, and one or more of said descriptor  
components have descriptor components as descendents.

10 56. Apparatus as claimed in claim 54, wherein said apparatus further comprises:  
means for playing resources corresponding to said located descriptions of resources.

15 57. Apparatus as claimed in claim 54, wherein said attributes of said descriptor  
components representative of said at least two axes of access are inferred from the content  
of the description.

20 58. Apparatus as claimed in claim 57, wherein said attribute of a said descriptor  
component is inferred to be a table of content descriptor if the said descriptor component  
contains a reference to a resources or a section of a resource.

25 59. Apparatus as claimed in claim 58, wherein said attribute of a said descriptor  
component is inferred to be an index descriptor if the said descriptor component is not  
inferred to be a table of contents descriptor.

30 60. Apparatus for locating electronically-accessible resources using descriptions of said  
resources, wherein the descriptions of said resources have descriptor components, each  
said descriptor component comprises the association of a feature of a said resource with a  
representative value for that feature, and one or more of said descriptor components  
including a table of contents attribute and one or more of said descriptor components  
including an index attribute, and wherein said descriptions have links to corresponding  
said electronically-accessible resources, said apparatus comprising:  
means for reading said descriptions;

means for displaying a table of contents containing table of contents items, wherein each table of contents item is associated with a corresponding said descriptor component that has a table of contents attribute;

means for selecting one said displayed table of contents item;

5 means for displaying an index containing index items, wherein each said displayed index item is associated with a corresponding said descriptor component that has an index attribute and that is associated with the said selected table of contents item;

means for selecting one or more index items in the displayed index;

10 means for specifying a said representative value or values for the one or more said selected index items;

means for searching said descriptions of the resources for said one or more selected index items and their corresponding said specified representative value or values; and

15 means for locating one or more said descriptions of the resources corresponding to said one or more selected index items and their corresponding said specified representative value or values.

61. A method as claimed in claim 60, wherein said read means represents each said description by a tree of descriptor components, and one or more of said descriptor components have descriptor components as descendents.

20 62. Apparatus as claimed in claim 60, wherein said apparatus further comprises:  
means for playing resources corresponding to said located descriptions of resources.

25 63. Apparatus as claimed in claim 60, wherein operation of said means for selecting one said table of contents item is optional and if not performed said means for displaying an index displays all said index items associated with all said table of contents items.

30 64. Apparatus as claimed in claim 60, wherein said means for selecting said representative value or values comprise means for selecting logical combinations of said displayed index items and their said representative values.

al  
Don't

[illegible]

15

20

25

30

CFP1595US IPR34-38\_GRP149056BUS

I:\ELEC\CISRA\IPR\IPR34-38\_ORP\1490568US.doc:PWM.

5

10

15

20

code for browsing said descriptions of the resources and their corresponding electronically-accessible resources via said links using said displayed items.

25

30

code for specifying a query in terms of index descriptors;

CFP1595US IPR34-38\_GRP1490568US

I:\ELEC\CISRA\PR\PR34-38\_GRP1\490568US.doc:P\WM

code for locating said corresponding electronically-accessible resources using said links associated with said displayed items.

5 73. A computer readable medium comprising a computer program for locating electronically-accessible resources using descriptions of said resources, wherein the descriptions of said resources have descriptor components, each said descriptor component comprises the association of a feature of a said resource with a representative value for that feature, and one or more of said descriptor components including a table of contents attribute and one or more of said descriptor components including an index attribute, and wherein said descriptions have links to corresponding said electronically-accessible resources, said computer program comprising:

code for reading said descriptions;

code for displaying a table of contents containing table of contents items, wherein each table of contents item is associated with a corresponding said descriptor component that has a table of contents attribute;

code for selecting one said displayed table of contents item;

code for displaying an index containing index items, wherein each said displayed index item is associated with a corresponding said descriptor component that has an index attribute and that is associated with the said selected table of contents item;

code for selecting one or more index items in the displayed index;

code for specifying a said representative value or values for the one or more said selected index items;

code for searching said descriptions of the resources for said one or more selected index items and their corresponding said specified representative value or values; and

code for locating one or more said descriptions of the resources corresponding to said one or more selected index items and their corresponding said specified representative value or values.

30 74. A computer readable medium comprising a computer program for annotating an electronically-accessible resource using a description of said resource, wherein the description of said resource has descriptor components, each said descriptor component comprises the association of a feature of said resource with a representative value for that feature, and one or more of said descriptor components including a table of contents

code for reading said descriptions;

code for reading said descriptions;

code for displaying a table of contents containing table of contents items, wherein  
5 each table of contents item is associated with a corresponding said descriptor component  
that has a table of contents attribute;

~~code for selecting one said displayed table of contents item for the annotation;~~

code for displaying an index containing index items, wherein each said displayed index item is associated with a corresponding said descriptor component that has an index attribute and that is associated with the said selected table of contents item;

~~code for selecting one said displayed index item;~~

code for associating said selected displayed index item with said selected table of contents item;

code for choosing a said representative value for the selected index item; and

code for associating said chosen representative value with said feature which corresponds to said selected index item, wherein said chosen representative value and its corresponding feature provide an annotation of the resource.

20 75. A method of selecting one or more descriptions or one or more descriptor components from a set of descriptions, wherein said descriptions comprise one or more said descriptor components, and each said description of said set of descriptions is associated with a corresponding electronically accessible resource, said method comprising the steps of:

specifying a desired selection of descriptor components;

generating a selection rule based on said specified descriptor components, wherein said selection rule having a predetermined pattern and action component, wherein the said predetermined pattern represents a specified pattern of descriptor components and the said action specifies the action to be performed when a said descriptor component in the descriptions of the set of descriptions matches the predetermined pattern;

30 reading said descriptions of the resources;

locating patterns of descriptor components in descriptions of said set of descriptions in order to select descriptor components or descriptions in said set of

descriptions having said descriptor components which match the predetermined pattern;  
and

performing said specified action.

5 76. The method as claimed in claim 75, wherein each said read description is represented by a tree of descriptor components, and one or more said descriptor components have descriptor components as descendents.

10 77. The method as claimed in claim 76, wherein said predetermined pattern is represented using the context of said tree of descriptor components.

15 78. The method as claimed in claim 77, wherein the said action component of the selection rule involves setting the value of a predetermined descriptor attribute in order to indicate which descriptor components have been selected to an application.

79. The method as claimed in claim 76, wherein the said predetermined descriptor attribute is also set for each of the ancestors of a descriptor component which matches the said predetermined pattern.

20 80. The method as claimed in claim 76, wherein the said predetermined descriptor attribute is also set for the root descriptor of the tree containing a descriptor which matches the said predetermined pattern.

25 81. The method as claimed in claim 80, wherein the setting of the predetermined descriptor attribute for the root descriptor of the tree corresponds to the selection of the description.

30 82. The method as claimed in claim 79, wherein the said pattern component of the said selection rule is automatically set to the current structural context set by a browsing application.

83. Apparatus for selecting one or more descriptions or one or more descriptor components from a set of descriptions, wherein said descriptions comprise one or more

said descriptor components, and each said description of said set of descriptions is associated with a corresponding electronically accessible resource, said apparatus comprising:

- means for specifying a desired selection of descriptor components;
- 5 means for generating a selection rule based on said specified descriptor components, wherein said selection rule having a predetermined pattern and action component, wherein the said predetermined pattern represents a specified pattern of descriptor components and the said action specifies the action to be performed when a said descriptor component in the descriptions of the set of descriptions matches the predetermined pattern;
- 10 means for reading said descriptions of the resources;
- means for locating patterns of descriptor components in descriptions of said set of descriptions in order to select descriptor components or descriptions in said set of descriptions having said descriptor components which match the predetermined pattern;
- 15 and
- means for performing said specified action.

84. A computer readable medium comprising a computer program for selecting one or more descriptions or one or more descriptor components from a set of descriptions, wherein said descriptions comprise one or more said descriptor components, and each said description of said set of descriptions is associated with a corresponding electronically accessible resource, said computer program comprising:

- code for specifying a desired selection of descriptor components;
- code for generating a selection rule based on said specified descriptor components,
- 25 wherein said selection rule having a predetermined pattern and action component, wherein the said predetermined pattern represents a specified pattern of descriptor components and the said action specifies the action to be performed when a said descriptor component in the descriptions of the set of descriptions matches the predetermined pattern;
- 30 code for reading said descriptions of the resources;
- code for locating patterns of descriptor components in descriptions of said set of descriptions in order to select descriptor components or descriptions in said set of



descriptions having said descriptor components which match the predetermined pattern;  
and  
code for performing said specified action.

- 5 85. A method of generating on an output device a presentation based on a predetermined selection of resources, said method comprising the steps of:

reading a description scheme for said presentation, wherein the description scheme for said presentation uses a declarative description definition language which contains definitions for descriptor components of the description scheme;

generating a description of the said presentation using said description scheme and said predetermined selection of said resources; and

generating on said output device the said presentation based on the said description of the said presentation and the predetermined selected resources.

- 15 86. The method as claimed in claim 85, wherein said resources are digital video resources and said presentation is a video presentation.

87. The method as claimed in claim 86, wherein said output device is a display device.

- 20 88. The method as claimed in claim 85, wherein said description scheme has an associated reference to procedural code for the instantiation of a descriptor in the description of the presentation.

- 25 89. The method as claimed in claim 86, wherein the said description of the video presentation can specify sections of different individual digital video resources to be used to render the video presentation.

90. The method as claimed in claim 85, wherein the method comprises associating with the said description scheme a set of presentation rules.

- 30 91. The method as claimed in claim 90, wherein the presentation rules specify the type of transitions that are to be rendered between sections of the presentations.

92. The method as claimed in claim 90, wherein the presentation rules specify whether a title is rendered for the presentation.

5 93. The method as claimed in claim 90, wherein the presentation rules specify the spatial placement, colour, font and/or size of a title to be rendered for the presentation.

10 94. The method as claimed in claim 86, wherein the method comprises associating with the said description scheme a set of presentation rules and the presentation rules specify the speed at which components are played in the video presentation.

15 95. The method as claimed in claim 85, wherein the method further comprises associating with the said description scheme a set of presentation rules which specify characteristics of the style of the presentation for said description generated using the said description scheme.

96. The method as claimed in claim 95, associating with the said description a further set of presentation rules which specify characteristics of the style of the presentation to be generated from the said description.

20 97. The method as claimed in claim 94, wherein the presentation rules specify that a particular component of a presentation is to be played at the original recorded speed, a slower speed or a faster speed.

25 98. The method as claimed in claim 85, wherein said resources are digital image resources.

99. The method as claimed in claim 85, wherein said presentation is a printed presentation.

30 100. The method as claimed in claim 85, wherein said output device is a printer device.

101. The method as claimed in claim 99, wherein the method comprises associating with the said description scheme a set of presentation rules and said presentation rules specify the spatial layout of the printed presentation.

5 102. The method as claimed in claim 99, wherein the method comprises associating with the said description scheme a set of presentation rules and said presentation rules specify colour information for the printed presentation.

10 103. The method as claimed in claim 98, wherein the said digital image resources contains image frames from digital video resources stored on a DVD.

15 104. The method as claimed in claim 85, wherein the step of reading a description scheme and the step of generating a description are performed on a source device and said step of generating said presentation is performed on said output device and said method further comprises the step of:

communicating the said description from the source to the output device via a wireless connection.

20 105. The method as claimed in claim 104, wherein the resources are digital video resources which are stored and accessed from a processing server, which is separate from and has a wireless connection to the said source device, and a connection to the said output device.

25 106. The method as claimed in claim 105, wherein the said processing server renders the presentation for viewing from the description of the presentation and communicates the rendered presentation to the said output device.

30 107. The method as claimed in claim 105, wherein the said processing server communicates both the description of the presentation and the associated digital video resources to the said output device which subsequently renders the presentation for viewing.

108. The method as claimed in claim 104, wherein the resources are digital video resources which are stored and accessed from the said source device and communicated with the said description of the presentation to the said output device, which has digital video display capability.

109. The method as claimed in claim 108, wherein a digital video resource associated with the description is communicated via the wireless connection in encoded format.

110. The method as claimed in claim 108, wherein a digital video resource associated with the description is communicated via the wireless connection in compressed format.

111. A method of generating on an output device a presentation based on a predetermined selection of resources, said method comprising the steps of:

reading a description scheme for said presentation, wherein said description scheme contains definitions for descriptor components of the description scheme, and each said descriptor component comprises the association of a presentation attribute with a representative value for that attribute;

generating a description of the said presentation using said description scheme and said predetermined selection of resources; and

generating on said output device the said presentation based on the said generated description of the said presentation, the predetermined selected resources, and a set of presentation rules, which rules specify characteristics of the style of said generated presentation, wherein said set of presentation rules are associated with said description scheme.

112. The method as claimed in claim 111, wherein said description scheme uses a declaration description definition language.

113. Apparatus for generating on an output device a presentation based on a predetermined selection of resources, said apparatus comprising:

means for reading a description scheme for said presentation, wherein the description scheme for said presentation uses a declarative description definition

language which contains definitions for descriptor components of the description scheme;

means for generating a description of the said presentation using said description scheme and said predetermined selection of said resources; and

means for generating on said output device the said presentation based on the said description of the said presentation and the predetermined selected resources.

114. Apparatus for generating on an output device a presentation based on a predetermined selection of resources, said apparatus comprising:

means for reading a description scheme for said presentation, wherein said description scheme contains definitions for descriptor components of the description scheme, and each said descriptor component comprises the association of a presentation attribute with a representative value for that attribute;

means for generating a description of the said presentation using said description scheme and said predetermined selection of resources; and

means for generating on said output device the said presentation based on the said generated description of the said presentation, the predetermined selected resources, and a set of presentation rules, which rules specify characteristics of the style of said generated presentation, wherein said set of presentation rules are associated with said description scheme.

115. A computer readable medium comprising a computer program for generating on an output device a presentation based on a predetermined selection of resources, said computer program comprising:

code for reading a description scheme for said presentation, wherein the description scheme for said presentation uses a declarative description definition language which contains definitions for descriptor components of the description scheme;

code for generating a description of the said presentation using said description scheme and said predetermined selection of said resources; and

code for generating on said output device the said presentation based on the said description of the said presentation and the predetermined selected resources.

116. A computer readable medium comprising a computer program for generating on an output device a presentation based on a predetermined selection of resources, said computer program comprising:

5

code for reading a description scheme for said presentation, wherein said description scheme contains definitions for descriptor components of the description scheme, and each said descriptor component comprises the association of a presentation attribute with a representative value for that attribute;

10

code for generating a description of the said presentation using said description scheme and said predetermined selection of resources; and

15

code for generating on said output device the said presentation based on the said generated description of the said presentation, the predetermined selected resources, and a set of presentation rules, which rules specify characteristics of the style of said generated presentation, wherein said set of presentation rules are associated with said description scheme.